What is claimed is:

1. A method of limiting access to data stored on an optical medium, comprising the steps of:

(a) rotating an optical disk in a disk drive at a selected rotational speed, said optical disk including a substrate encoded with information stored thereon as a plurality of readable data structures and including a reactive compound contacted by a light for reading the data structures, said reactive compound operative in an ambient environment containing oxygen to change optical transmission in response to irradiation by said light for an accumulated duration of time, wherein said light has a beam wavelength within a selected range; and

(b) directing an interrogating beam of the light having a beam wavelength that is within said selected range toward said substrate layer and through said reactive compound for the accumulated duration of time.

2. The method of limiting access to data according to Claim 1 wherein said interrogating beam is directed at said substrate for a continuous interval of time that is sufficient to cause said change in optical transmission.

3. The method of limiting access to data according to Claim 1 wherein said interrogating beam is directed at said substrate for a plurality of discrete intervals of time sufficient to cause said change in optical transmission.

4. The method of limiting access to data according to Claim 1 wherein said beam wavelength is in a range of 780 to 820 nanometers (nm).

5. The method limiting access to data according to Claim 1 wherein said beam wavelength is approximately 650 nanometers (nm).

6. The method of limiting access to data according to Claim 1 wherein said step of directing said interrogating beam at said substrate layer is accomplished

by selectively advancing said interrogating beam radially across an outermost surface of said optical disk until said interrogating beam interacts with said reactive compound for a plurality of discrete intervals of time sufficient to cause said change optical transmission.

7. A method of limiting access to data according to Claim 1 wherein said beam intensity is approximately .5 to 1.0 milliwatts (mW) of power.

8. A method of limiting access to data according to Claim 1 wherein said beam wavelength is approximately 780 nanometers (nm).

9. An optical disk adapted for use in an optical readout system of a computer that includes a light source operative to produce an interrogating beam of light for reading data structures, comprising: (a) reflective layer encoded with information stored thereon as a plurality of data structures that are readable by an interrogating beam of light;

(b) a substrate disposed in a confronting relationship with said reflective layer;

(c) a film of a reactive compound superimposed over at least some of said data structures, said reactive compound selected to be of a type which is operative to change physical characteristics in response to a selected stimulus, thereby to affect readability of the data by said interrogating beam of light.

10. An optical disk according to Claim 9 wherein said reactive compound is interposed between said reflective layer and said substrate.

11. An optical disk according to Claim 9 wherein said reflective layer is contoured to include a sequence of pits and lands which define said plurality of data structures, said reactive compound superimposed over at least some of said pits and lands.

12. An optical disk according to Claim 9 wherein said reactive compound is supported on an outer surface of said substrate and has a thickness in a range of approximately 0.14 to 0.6 microns.

13. An optical disk according to Claim 9 wherein said stimulus is selected from a group consisting of visible light, infrared light, an ambient environment containing light and air.

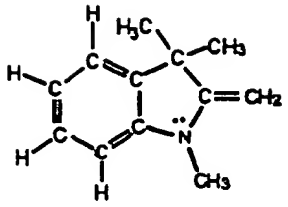
14. An optical disk according to Claim 9 wherein said stimulus is light and wherein said reactive compound is a photoreactive material.

15. An optical disk according to Claim 9 wherein said reactive compound comprises selected from a spiropyran class of photochromic compounds.

16. An optical disk according to Claim 15 wherein said reactive compound comprises 6-nitro-1'3'3'-trimethylspiro[2H-1-benzothiopyran-2,2'-indoline].

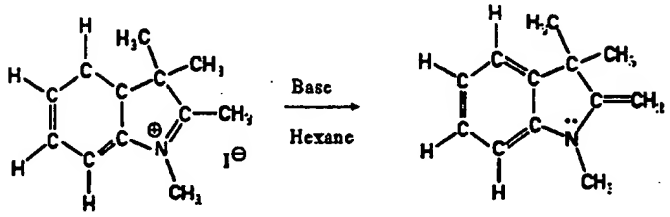
17. An optical disk according to Claim 9 wherein said reactive compound is operative to change to an optically darkened state in response to an interrogating beam wavelength of approximately 780 nanometers (nm) and thereafter return to an optically clear state in response to irradiation by a beam of light having a wavelength of approximately 337 nanometers (nm).

18. An optical disk according to Claim 9 wherein said stimulus is an ambient environment containing light and oxygen and wherein said reactive compound has the chemical formula:



COMPOUND 1

19. An optical disk according to Claim 9 wherein said stimulus is an ambient environment containing light and air and wherein said reactive compound has the chemical formula:



Tetramethylindolium iodide COMPOUND 1

20. An optical disk according to Claim 9 wherein said stimulus is air and wherein said reactive compound is operative for an accumulated duration of time to oxidize and alter an optical characteristic of the compound.

21. An optical disk according to Claim 9 wherein said reactive compound is operative to change from an optically transparent to an optically opaque condition wherein said reactive compounds absorbs light having a wavelength within a selected range.

22. An optical disk according to Claim 21 wherein said wavelength is approximately 780 nanometers (nm).

23. An optical disk according to Claim 21 wherein said wavelength is approximately 650 nanometers (nm).

24. An optical disk according to Claim 9 wherein said reactive compound is a chemically reduced form of a dye.

25. An optical disk according to Claim 9 wherein said reactive compound is selected from a group of dyes consisting of methylene blue, brilliant cresyl blue, basic blue 3 and toluidine blue 0.

26. In an optical disk for use in an optical readout system of a computer wherein said optical disk includes an inner substrate layer having a substrate surface encoded with information stored thereon as a plurality of data structures and an outer layer and wherein said optical readout system includes a disk drive operative to rotate the optical disk at a selected rotational speed, a light source operative to produce an interrogating beam of light at a selected beam wavelength and at a selected beam intensity and to direct said interrogating beam of light at the data structures, and a detector operative to collect a returned component of said interrogating beam and to produce an output signal in response thereto, an improvement comprising a film of reactive compound superimposed over at least some of said data structures, said reactive compound operative to change its physical characteristics in response to a selected environmental stimulus thereby to affect readability of the data by the interrogating beam of light.

27. The improvement of Claim 26 wherein said reactive compound is responsive to irradiation by the interrogating beam for an accumulated duration of time to change physical characteristics thereby to mask said data structures and to render said data structures undetectable by the optical readout system.

28. An article of manufacture adapted to be encoded with data and further adapted so that duplication of the data by an optical scanning machine may be inhibited, comprising:

(a) a substrate fabricated from a selected material and having a substrate surface which contains the data; and

(b) a reactive compound coating at least a portion of said substrate surface, said reactive compound operative to change from an optically transparent state to an optically opaque state in response to irradiation for an accumulated duration of time by infrared light having desired characteristics thereby to prevent light from the optical scanning machine from penetrating said reactive compound and to render the data undetectable by the optical scanning machine.

29. A method of limiting the use of information stored with an optical medium, comprising:

providing, to an optical reader, the optical medium having information for performing a desired action;

determining whether an expected profile of a purposefully induced change in the access of the information is detected;

performing the desired action using the information when said expected profile is detected; and

prohibiting said step of performing when said expected profile is not detected.

30. A method as claimed in Claim 29, wherein said optical medium is one of a compact disk and a digital versatile disk.

31. A method as claimed in Claim 29, wherein said step of determining includes detecting said purposefully induced change as one of: a distinctive pattern of errors, and a distinctive pattern of an absence of errors.

32. A method as claimed in Claim 31, wherein said step of detecting includes detecting one of the distinctive patterns by determining a related to one of the errors and the absence of errors.

33. A method as claimed in Claim 29, wherein said step of determining includes:

sampling locations on the optical medium for detecting data access errors, wherein location data related to the detection of the data access errors is obtained;

comparing the expected profile with the location data for detecting said change in the access of the information.

34. A method as claimed in Claim 33, wherein said step of comparing includes evaluating a function dependent on one of: a number of errors detected, a relative number of errors detected, a pattern of errors, a density of errors detected and a location of errors detected.

35. A method as claimed in Claim 34, wherein a result of said function indicates that said expected profile is detected when there is at least one of: a minimum threshold number of errors detected, and a minimum threshold density in the number of errors detected.

36. A method as claimed in Claim 34, wherein a result of said function indicates that said expected profile is detected when there is at least one of: a maximum threshold number of errors detected, and a maximum threshold density in the number of errors is detected.

37. A method as claimed in Claim 33, wherein said step of sampling includes detecting data access errors not capable of being corrected by error correction modules receiving data via the optical reader.

38. A method as claimed in Claim 29, further including a step of damaging the optical medium by one of: a chemical reaction and a mechanical activity;

wherein said step of damaging is for obtaining said expected profile.

39. A method as claimed in Claim 38, wherein said step of damaging by a mechanical activity includes changing a reflective characteristic of the optical medium by one of: tearing and etching a layer of the optical medium.

40. A method as claimed in Claim 39, further including a step of encoding one of a damaged and undamaged

portion of the optical medium for identifying a financial transaction card having said optical medium, after said step of damaging is performed.

41. A method as claimed in Claim 29, wherein said step of performing includes correcting data access errors detected as part of said expected profile;

wherein said step of correcting is performed during said performing of the desired action.

42. A method as claimed in Claim 41, wherein at least some of said access errors are induced by microdots.

43. A method as claimed in Claim 42, wherein said microdots each have a size of approximately less than 1000 microns.

44. A method as claimed in Claim 29, further including a step of creating access errors as an instance of said expected profile prior to performing said step of providing.

45. A method as claimed in Claim 44, wherein said step of creating includes incorporating into the optical medium, a means for authenticating the optical medium, wherein the information on said optical medium includes one of an audio presentation and a multimedia presentation.

46. A method as claimed in Claim 38, wherein said step of damaging the optical medium includes changing a reflective characteristic of the optical medium by one of: exposing the optical medium to a reactive chemical, rupturing a chemical container attached to the optical medium, and exposing a predetermined part of the optical medium having a light sensitivity to an effective amount of light for changing the reflective characteristics of the optical medium.

47. A method as claimed in Claim 38, wherein said step of damaging includes removing an item attached to the optical medium.

48. A method as claimed in Claim 29, further including a step of reducing access errors for obtaining said expected profile.

49. A method as claimed in Claim 48, wherein said step of reducing includes performing one of: a chemical reaction and a mechanical activity for changing a reflective characteristic of the optical medium.

50. A method as claimed in Claim 49, wherein said step of performing includes removing an attached layer from the optical medium.

51. A method as claimed in Claim 49, wherein said step of performing includes changing a reflective characteristic of the optical medium by one of: purposefully exposing the optical medium to a chemical rupturing a chemical container of the optical medium, and exposing a predetermined part of the optical medium having a light sensitivity to an effective amount of light for reducing the access errors.

52. A method as claimed in Claim 29, wherein said step of performing includes conducting a financial transaction, wherein said optical medium is included on a card for conducting the financial transaction.

53. A method as claimed in Claim 52, wherein said step of determining includes reading identifying data on said card for identifying a previously stored representation of said expected profile.

54. A method as claimed in Claim 29, wherein the information includes one of: graphical data, video data, audio data, text data and a software program.

55. A method as claimed in Claim 29, wherein said step of determining includes attempting to access a portion of the information residing within a predetermined part of the optical medium where the expected profile resides, wherein the predetermined part includes a minority of a total storage capacity of the optical medium.

56. A method as claimed in Claim 29, further including a step of deactivating an error correction module.

57. A method as claimed in Claim 56, wherein said step of deactivating is performed prior to each performance of said step of determining.

58. A method as claimed in Claim 57, further including a step of reactivating the error correction module after said step of determining.

59. A method as claimed in Claim 29 further including steps of:

encoding said purposefully induced change; and

outputting said encoded change to a user of the optical medium waiting to perform the desired action.

60. A method as claimed in Claim 59, wherein said step of encoding includes encrypting said purposefully induced change together with identification data related to at least one of: an identity of the user, and an identity of at least one component of a device used for processing the information on the optical medium.

61. A method as claimed in Claim 60, wherein said step of encrypting includes determining an identifying code for one of a central processing unit and a peripheral processing unit as said at least one component.

62. A method as claimed in Claim 29, wherein said step of providing includes purposefully inducing a change in access errors at each of one or more locations of the optical medium for instantiating said expected profile.

63. A method as claimed in Claim 62, wherein said step of purposefully inducing includes:

removing the optical medium from the optical reader;

altering an optical characteristic of the optical medium; and

providing, again, said optical medium to the optical reader.

64. A method as claimed in Claim 62, wherein said step of purposefully inducing includes changing one of an optical reflectance and an optical transmittance.

65. A method as claimed in Claim 62, wherein said step of purposefully inducing includes one of rendering unreadable an initially readable portion of the optical medium and rendering readable an initially unreadable portion of said optical medium.

66. A method as claimed in Claim 62, wherein said step of purposefully inducing includes providing an image of a body part on a touch sensitive portion of said optical medium.

67. A method as claimed in Claim 66, further including a step of comparing a representation of said provided image with a previously stored representation of a body part image for determining a consistency between said provided image representation and said previously stored image representation.

68. A method as claimed in Claim 67, wherein said step of comparing includes a step of transmitting said representation of the provided image on a communications network for performing electronic commerce.

69. A method as claimed in Claim 66, wherein said touch sensitive portion includes a compound reactive to one of heat, pressure, and a bodily produced substance.

70. A method as claimed in Claim 29, wherein said step of determining includes identifying said optical medium using an inputted code describing the expected profile.

71. A method as claimed in Claim 70, wherein said inputted code was previously provided to a user desiring to perform the desired action.

72. A method as claimed in Claim 70, wherein said inputted code was output during a previous performance of said step of determining.

73. A method of limiting the use of information stored on an optical medium, comprising:

providing, to an optical reader, an optical medium having information for performing a desired action;

detecting an expected profile of a change in access errors for the information on the optical medium;

comparing an encoding of the change with a user input;

performing the desired action using the information when said encoding provides a favorable comparison with the user input; and

prohibiting a performing of the desired action when said encoding provides an unfavorable comparison with the user input.

74. A method as claimed in Claim 73, further including a step of encrypting together a representation of said change and identification data related to at least one of: an identity of the user, and an identity of a device for accessing the information on the optical medium;

wherein a result of said step of encrypting yields said encoding.

75. A method as claimed in Claim 74, wherein said step of detecting includes determining said change in the access errors by mapping locations of the access errors in at least one predetermined portion of the optical medium.

76. A method as claimed in Claim 75, wherein said predetermined portion extends to only a minority of the total data storage capacity of the optical medium.

77. A method as claimed in Claim 73, wherein said step of determining includes using a representation of locations of the access errors in an encryption process for obtaining said encoding.

78. A method as claimed in Claim 73, wherein data of said user input was obtained by the user from a previous attempt to access the information on the optical medium.

79. An apparatus for limiting the use of information stored with an optical medium, comprising:

an optical medium having stored information, wherein said information is used in performing a desired action;

means for producing a change in the access errors encountered when accessing data locations for information on the optical medium, wherein the change corresponds with an expected profile;

means for detecting whether an instance of the expected profile has occurred;

means for determining when to perform the desired action using an output from said means for determining whether said instance has occurred.

80. An apparatus as claimed in Claim 79, further including means for performing the desired action when the instance of the expected profile is detected.

81. An apparatus as claimed in Claim 79, wherein said means for performing includes one of: means for loading software onto a computer, means for presenting a presentation, and means for conducting a financial transaction.

82. An apparatus as claimed in Claim 79, further including:

means for prohibiting an activation of the desired action when an instance of the expected profile is not detected.

83. An apparatus as claimed in Claim 79, further including:

means for performing the desired action until an instance of the expected profile is detected.

84. An apparatus as claimed in Claim 83, wherein said means for performing the desired action includes means for reading identification data from said optical medium, wherein said optical medium is provided on a financial

transaction medium, and said optical medium is one of: light sensitive and oxygen sensitive.

85. An apparatus as claimed in Claim 84, wherein identification data includes bank routing data.

86. An apparatus as claimed in Claim 79, wherein said optical medium includes a digitally encoded optically reflective material.

87. An apparatus as claimed in Claim 86, wherein said optically reflective material is included in one of a compact disk, digital versatile disk, and a financial transaction card.

88. An apparatus as claimed in Claim 79, wherein said desired action includes one of: loading information into a computer memory, performing an audio presentation, performing a multimedia presentation, and performing a financial transaction.

89. An apparatus as claimed in Claim 79, wherein said means for detecting includes means for sampling data in one or more locations of the optical medium.

90. An apparatus as claimed in Claim 79, wherein said means for producing is attached to said optical medium.

91. An apparatus as claimed in Claim 79, wherein said means for producing includes one of: a means for increasing access errors, and a means for decreasing access errors.

92. An apparatus as claimed in Claim 91, wherein said means for increasing access errors includes one of: a chemical sac, a ripcord, an etching means for etching a surface of the optical medium, and an embedded light reactive chemical in the optical medium.

93. An apparatus as claimed in Claim 91, wherein said means for decreasing data access errors includes one of: a data mask attached to the optical medium, and a chemical sac attached to the optical medium.

94. An apparatus as claimed in Claim 79, wherein said means for producing includes an instrument detached from

said optical medium, wherein said instrument changes an external surface of said optical medium when applied to the optical medium.

95. An apparatus as claimed in Claim 94, wherein said instrument includes one of: means for scoring, and means for removing a layer of said optical medium.

96. An apparatus as claimed in Claim 79, further including an encoding means for encoding a representation of the change in the access errors, wherein said means for encoding includes means for outputting to a user encrypted data including an encryption of a combination of: (a) the change in the access errors, and (b) at least one of: an identification of the user and an identification a device for accessing the information on the optical medium.

97. An apparatus as claimed in Claim 96, wherein said means for outputting instructs a user to copy said encrypted data.

98. An apparatus as claimed in Claim 79, wherein a user desiring access to the information activates said means for producing prior to gaining access to the information.

99. An apparatus as claimed in Claim 79, further including storage for storing a representation of the change in the access errors, wherein said representation is referenced in said storage using an identification of a user having the optical medium.

100. An apparatus as claimed in Claim 99, wherein said representation is used in a verification process of a financial transaction.

101. A method of limiting access to stored data on an optical medium, comprising:

inserting the optical medium into an optical medium access device for accessing information in at least one of a predetermined first storage portion and a predetermined second storage portion of the optical medium;

activating a desired computer application, wherein to perform said application, information in said predetermined second storage portion must be used;

purposefully inducing a change in the first storage portion, wherein said change is irreversible;

obtaining a response indicative of whether the purposefully induced change exists; and

determining whether to use the information in said predetermined second storage by accessing said response indicating the existence of said change.

102. A method as claimed in Claim 101, wherein said step of purposefully inducing includes damaging an optical characteristic of the first storage portion.

103. A method as claimed in Claim 101, wherein said step of purposefully inducing includes one of: removing a layer from the first portion, causing a layer of the first portion to become opaque, marring a layer of the first portion, and chemically distorting an optical characteristic of the first portion.

104. A storage medium having limited access, comprising:

a first storage portion of the storage medium, wherein said first storage portion includes one or more data storage locations, wherein the locations are related to a data accessibility profile;

a means for changing the accessibility of data at the locations, where the change is purposeful and substantially irreversible;

wherein when said means for changing is applied to the locations, said profile is obtained.

105. A storage medium as claimed in Claim 104, wherein said storage medium is an optical disk.

106. A storage medium as claimed in Claim 104, wherein said means for changing includes a detachable portion of the storage medium, wherein the data accessibility profile

is detected during an access of the locations when said detachable portion is detached from the storage medium.

107. A storage medium as claimed in Claim 104, wherein said means for changing generates one of a decrease and an increase in the number of errors during access to the data at the locations.

108. A storage medium as claimed in Claim 104, wherein data in a second storage portion of the storage medium is accessible in response to an indication that said data accessibility profile exists.

109. A method of limiting access to stored data on a storage medium, comprising:

inserting the storage medium into a storage access device for accessing information in at least one of a predetermined first storage portion and a predetermined second storage portion of the storage medium;

activating a desired computer application, wherein to perform said application, information in said predetermined second storage portion must be used;

purposefully inducing a change in the first storage portion;

selecting a sampling of a plurality of the storage medium locations, wherein the locations of the sampling are selected so that there is a predetermined density of samples within the first storage portion;

detecting said change by accessing the locations of the sampling;

obtaining a response indicative of whether the purposefully induced change exists; and

determining whether to use the information in said predetermined second storage by accessing said response indicating the existence of said change.